

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application.

COMPLETE LISTING OF THE CLAIMS:

Claims 1-136 : (Canceled)

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Claim 137 (New) : A method of transmitting data in a synchronous digital hierarchy (SDH) network, comprising the steps of: transmitting to a node of the SDH network a concatenated data signal from outside the SDH network; converting the signal into a virtually concatenated information structure comprising a plurality of virtual containers; distributing the signal across the plurality of virtual containers; and transporting the signal through the SDH network in the virtually concatenated information structure, wherein the converting step includes the step of processing a path overhead of the signal by using a part of the path overhead to indicate a sequence of frames in the virtually concatenated information structure.

Claim 138 (New) : The method of claim 137, comprising the step of converting the signal so transported into a signal of the same form as the concatenated signal transmitted to the node of the SDH network, the converting step including the step of processing the path overhead of the signal by restoring said part of the path overhead used to indicate the sequence of the frames in the virtually concatenated information structure.

Claim 139 (New) : The method of claim 137, wherein the concatenated signal transmitted to the SDH network from outside the SDH network is in contiguously concatenated form.

Claim 140 (New) : The method of claim 137, wherein the concatenated signal from outside the SDH network comprises a virtual container four (VC-4) or virtual container three (VC-3) or an administrative unit three (AU3).

Claim 141 (New) : The method of claim 140, wherein the path overhead comprises bytes H4, J1 and B3, wherein the VC-4 and VC-3 comprise a plurality of the frames, and the step of processing the path overhead includes the steps of using byte H4 for indicating the sequence of the frames within the VC-4 or VC-3, using byte J1 to indicate an order of VC-4s or VC-3s in the virtually concatenated information structure, and correcting, as necessary, error indication information carried in byte B3.

Claim 142 (New) : The method of claim 141, wherein the transmitting step transmits the concatenated signal in the form comprising four contiguously concatenated VC-4s, and wherein the processing step processes the four VC-4s into the virtually concatenated information structure comprising virtually concatenated VC-4s for transfer across the SDH network.

Claim 143 (New) : The method of claim 141, wherein the transmitting step transmits the concatenated signal in the form comprising five contiguously concatenated VC-3s, and wherein the processing step processes the five VC-3s into the virtually concatenated information structure comprising virtually concatenated VC-3s for transfer across the SDH network.

Claim 144 (New) : The method of claim 142, comprising the step of aligning the virtually concatenated virtual containers (VCs) of the virtually concatenated information structure using a buffer.

Claim 145 (New) : The method of claim 144, comprising the step of controlling the aligning step according to contents of bytes J1 and H4.

Claim 146 (New) : The method of claim 142, comprising the steps of switching and transmitting the VC-4 or VC-3 frames of the virtually concatenated information structure through the SDH network together in a single synchronous transfer module (STM) or in multiple STMs and via a same route.

Claim 147 (New) : The method of claim 137, wherein the concatenated signal from outside the SDH network comprises a virtual container two (VC-2) or a virtual container one (VC-1).

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Claim 148 (New) : The method of claim 147, wherein the path overhead comprises bytes V5, J2, N2 and K4, and wherein the step of processing the path overhead includes the step of transferring contents of the path overhead bytes to unused parts of the signal.

Claim 149 (New) : The method of claim 148, wherein the transmitting step transmits the concatenated signal in the form comprising two or more contiguously concatenated VC-2s or VC-1s, and wherein the processing step processes the VC-2s or VC-1s into the virtually concatenated information structure comprising virtually concatenated VC-2s or VC-1s for transfer across the SDH network.

Claim 150 (New) : The method of claim 149, comprising the step of aligning the virtually concatenated VCs of the virtually concatenated information structure using a buffer.

Claim 151 (New) : The method of claim 150, comprising the step of controlling the aligning step according to contents of the path overhead bytes transferred to the unused parts of the signal.

Claim 152 (New) : The method of claim 149, in which the contiguously concatenated VC-2s or VC-1s received from outside the SDH network comprise a plurality of the

frames in a set sequence, and in which the set sequence of the frames changes while being transported through the SDH network, and comprising the step of re-ordering the frames into the set sequence as required.

Claim 153 (New) : The method of claim 149, in which the VC-2s and VC-1s comprise a plurality of the frames, and the steps of switching and transmitting the VC-2 or VC-1 frames of the virtually concatenated information structure through the SDH network together in a single synchronous transfer module (STM) or in multiple STMs and via a same route.

Claim 154 (New) : The method of claim 137, comprising the step of recognizing a receipt of the signal in concatenated form by the SDH network.

Claim 155 (New) : A synchronous digital hierarchy (SDH) network in which data is carried in a virtually concatenated information structure, the network comprising: tributary interfaces arranged and configured to process at least one signal received in a contiguously concatenated form to convert it into a virtually concatenated form for transfer across the network, the virtually concatenated form comprising a plurality of virtual containers (VC) in which the at least one signal is distributed across the plurality of VC; and conversion means for processing a path overhead of the at least one signal by using a part of the path overhead to indicate a sequence of frames in the virtually concatenated information structure.

Claim 156 (New) : The network of claim 155, wherein the tributary interfaces are arranged and configured to process the at least one signal transferred across the SDH network in the virtually concatenated form and to convert it into the contiguously concatenated form.

Claim 157 (New) : The network of claim 156, wherein the tributary interfaces comprise at least one buffer for aligning the VC.

Claim 158 (New) : The network of claim 155, wherein the tributary interfaces are configured and arranged to detect the receipt of the at least one signal in the contiguously concatenated form by detecting a concatenation indication of the signal received.

Claim 159 (New) : A method of transmitting data in a virtually concatenated information structure comprising a plurality of virtual containers, a path overhead and a plurality of frames, the method comprising the steps of: distributing the data across the plurality of virtual containers; transmitting the data in a sequence of the frames; and using a part of the path overhead to indicate the sequence of the frames in the virtually concatenated information structure.

Claim 160 (New) : The method of claim 159, wherein the path overhead comprises an H4 byte, the method including the step of using the H4 byte for indicating the sequence of the frames.

Claim 161 (New) : The method of claim 159, wherein the path overhead comprises a J1 byte, the method including the step of using the J1 byte to indicate an order of the virtual containers in the virtually concatenated information structure.

Claim 162 (New) : The method of claim 159, wherein the path overhead comprises a B3 byte for providing an error indication, the method including the step of correcting, as necessary, the error indication carried in byte B3.

Claim 163 (New) : A virtually concatenated information structure for carrying data in a frame sequence, comprising: a plurality of virtual containers; a plurality of frames; a path overhead; the data being distributed across the plurality of virtual containers; and a part of the path overhead comprising means for indicating the frame sequence in the virtually concatenated information structure.

Claim 164 (New) : The virtually concatenated information structure of claim 163, wherein the path overhead comprises an H4 byte for indicating the frame sequence.

Claim 165 (New) : The virtually concatenated information structure of claim 163, wherein the path overhead comprises a J1 byte for indicating an order of the virtual containers in the virtually concatenated information structure.

Claim 166 (New) : The virtually concatenated information structure of claim 163, wherein the path overhead comprises a B3 byte for providing an error indication.

Claim 167 (New) : The virtually concatenated information structure of claim 163, wherein the virtually concatenated information structure comprises a virtual container four (VC-4) or virtual container three (VC-3) or an administrative unit three (AU3).

Claim 168 (New) : The virtually concatenated information structure of claim 167, wherein the path overhead comprises an H4 byte and a J1 byte, and wherein the H4 byte and the J1 byte comprise information for controlling alignment of the virtual containers.

Claim 169 (New) : The virtually concatenated information structure of claim 163, wherein a data signal from outside a network comprises a virtual container two (VC-2) or a virtual container one (VC-1).

Claim 170 (New) : A network management system for managing data transfer in a virtually concatenated information structure for carrying data in a frame sequence, comprising: the information structure comprising a plurality of virtual containers for sharing the data; a plurality of frames; and a path overhead, a part of the path overhead comprising means for indicating the frame sequence in the virtually concatenated information structure.

Claim 171 (New) : A tributary interface for transmission of a virtually concatenated information structure for carrying data in a frame sequence, comprising: the

information structure comprising a plurality of virtual containers for sharing the data; a plurality of frames; and a path overhead, a part of the path overhead comprising means for indicating the frame sequence in the virtually concatenated information structure.

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Claim 172 (New) : A network for transmission of data in a virtually concatenated information structure for carrying the data in a frame sequence, comprising: the information structure comprising a plurality of virtual containers for sharing the data; a plurality of frames; and a path overhead, a part of the path overhead comprising means for indicating the frame sequence in the virtually concatenated information structure.